SPARTAN X

MANUAL

IREM CORPORATION

"SPARTAN X" DIP SWITCH SETTING

DIP SW #1

OPTION			SW	1	2	3	4	5	6	7	8
DIFFICULTY		EASY		OFF							
		DIFFICULT		ON							
DECREASE OF ENERGY		SLOW			OFF						
		FAST			ON						
NUMBER OF FIGHTERS		2				ON	OFF				
		3				OFF	OFF				
		4				OFF	ON				
		5				ON	ON				
COIN MODE	* MODE 2 DIP SW 2's 3 ON	SELECTOR A	1 COIN 1 PLAY					OFF	OFF		
			2 COINS 1 PLAY					ON	OFF		
			3 COINS 1 PLAY					OFF	ON		
			FREE PLAY					ON	ON		
		SELECTOR B	1 COIN 2 PLAYS							OFF	OFF
			1 COIN 3 PLAYS							ON	OFF
			1 COIN 5 PLAYS							OFF	ON
			1 COIN 6 PLAYS							ON	ON
	** MODE 1 DIP SW 2's 3 OFF		1 COIN 1 PLAY					OFF	OFF	OFF	OFF
			2 COINS 1 PLAY					ON	OFF	OFF	OFF
			3 COINS 1 PLAY					OFF	ON	OFF	OFF
			4 COINS 1 PLAY					ON	ON	OFF	OFF
			5 COINS 1 PLAY					OFF	OFF	ON	OFF
			6 COINS 1 PLAY					ON	OFF	ON	OFF
			1 COIN 2 PLAYS					OFF	OFF	OFF	ON
			1 COIN 3 PLAYS					ON	OFF	OFF	ON
			1 COIN 4 PLAYS					OFF	ON	OFF	ON
			1 COIN 5 PLAYS					ON	ON	OFF	ON
			1 COIN 6 PLAYS					OFF	OFF	ON	ON
			FREE PLAY					ON	ON	ON	ON

NOTE: * For a cabinet with a single coin selector or with two coin selectors for the same value coin, Switch 3 of Dip Switch 2 must be OFF.

** For a cabinet with two coin selectors for two different value coins, Switch 3 of Dip Switch 2 must be ON.

DIP SW #2

OPTION	SW	1	2	3	4	5	6	7	8
FLIP PICTURE	NO	OFF							
	YES	ON							
CABINET TYPE	TABLE		OFF						
	UPRIGHT		ON						
COIN MODE SETTING	MODE 1			OFF					
	MODE 2			ON	ALWAYS OFF	OFF	ALWAYS OFF		
*FREEZE PICTURE	NO					OFF			
	YES					ON			
NO DEATH MODE	NO							OFF	
	YES							ON	
TEST MODE	NO								OFF
	YES								ON

NOTE: * Press 2-Player start button to freeze picture. Press 1-Player start button to let it move again.

PCB SPECIFICATIONS

POWER SUPPLY:

    VOLTAGE $5V \pm 5\%$

                 $12V \pm 10\%$

    AMPERE   5V MAX 5A

                 12V MAX 1.5A

MONITOR INTERFACE:

    VIDEO SIGNALS ········· TTL POSITIVE

    SYNC   SIGNALS ········· TTL NEGATIVE (COMPOSITE SYNC)

    HORIZONAL FREQUENCY ············ 16.0 KHz

    H. PERIOD   ············ 62.5 μs

    H. BLANK   ············ 21.3 μs

    H. SYNC PULSE   ············ 5.33 μs

    VERTICAL FREQUENCY ············ 56.3 Hz

    V. PERIOD   ············ 17.75 ms

    V. BLANK   ············ 1.75 ms

    V. SYNC PULSE   ············ 375 μs

	OPERATING	STORAGE
TEMPERATURE RANGE	0 to 50 ℃	− 5 to 60 ℃
RELATIVE HUMIDITY	20 to 70 %	NO MORE THAN 80%
VIBRATION RANGE	NO MORE THAN 0.5G	NO MORE THAN 1.0G
TOLERANCE FOR FALLING	NO MORE THAN 0 cm	(Packed) NO MORE THAN 50 cm

HORIZONTAL FREQUENCY ·············· 16.0 KHz

H. PERIOD ················· 62.5 μsec

H. SYNC PULSE ⟶| |⟵ 5.33 μsec

H. BLANKING

6.67 μsec

H. BLANK ··············· 21.3 μsec

VERTICAL FREQUENCY ················ 56.3 Hz

V. SYNC PULSE

17.75 msec

⟶| |⟵ 375 μsec

V. BLANKING

500 μsec

1.75 msec
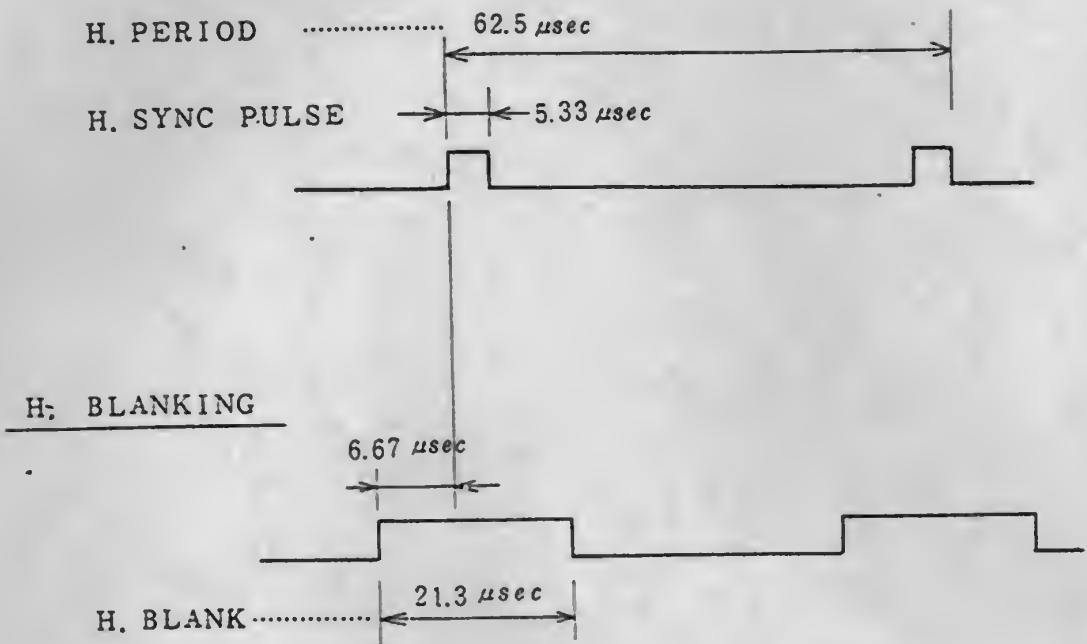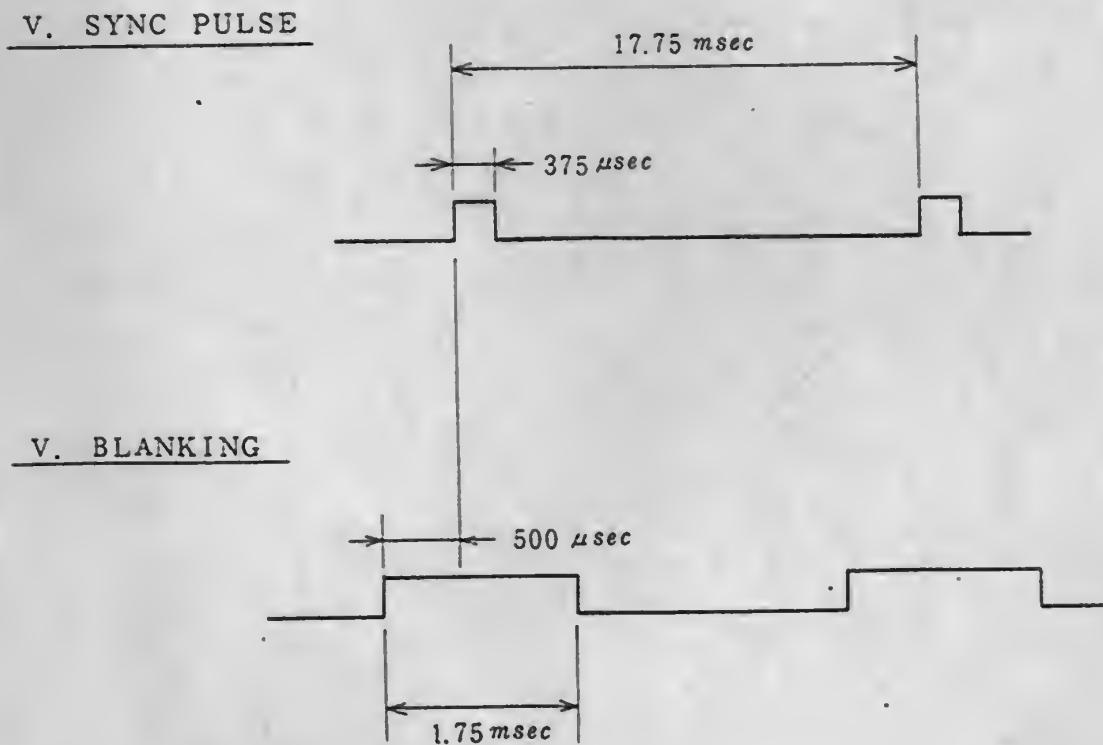
"SPARTAN X" 44 PIN EDGE-CONNECTOR

Unten   Oben

GND	1	2	GND
GND	3	4	GND
	5	6	
COIN COUNTER A	7	8	
1 P LEFT	9	10	2 P LEFT
1 P RIGHT	11	12	2 P RIGHT
1 P KICK	13	14	2 P KICK
2 P START	15	16	1 P START
	17	18	COIN COUNTER B
COIN B	19	20	COMP SYNC.
+ 12 V	21	22	+ 12 V
+ 12 V	23	24	+ 12 V
SPEAKER (−)	25	26	SPEAKER (+)
1 P PUNCH	27	28	2 P PUNCH
RED	29	30	GREEN
BLUE	31	32	
2 P UP	33	34	2 P DOWN
1 P UP	35	36	1 P DOWN
SERVICE SW	37	38	COIN A
+ 5 V	39	40	+ 5 V
+ 5 V	41	42	+ 5 V
GND	43	44	GND

Diagnostic program is activated by turning switch 8 of Dip switch 2 to the ON
position and turning power switch ON. This diagnostic program is composed of
8 independent tests, first two (RAM test and ROM test) of which initiate auto-
matically as power switch is turned ON. After these two tests end, TV monitor
displays a list of the next six tests as described below when the 2-Player button
is pressed:

        01 DIP SWITCH
        02 I-O PORT
        03 SOUNDS
        04 CHARACTER
        05 COLOR
        06 CROSS HATCH PATTERN

Move the joystick to position the cursor at the desired test and press the 1-Player
button to start the test.

To return to test list: Press the 2-Player button (except when 02 I-O PORT test ends).
As 02 I-O PORT test ends, move the joystick left (the 1-Player
joystick for table type game) while pressing the 2-Player
button.

When all the necessary testing is completed, turn power switch OFF and turn switch 8
of Dip switch 2 to the OFF position.

1. RAM TEST

If RAM is OK, "RAM OK" appears on TV monitor.

If RAM is at fault: "RAM NG XXXX   YY   ZZ"
                        (Faulty RAM address)(RAM input data)(RAM output data)
                        appears on TV monitor.

                        Press the 1-Player button to continue RAM TEST or

                        Press the 2-Player button to end this test and advance to
                        ROM TEST.

ROM TEST

If ROMs are OK, the following appears on TV monitor.
        RAM   OK
        ROM Ø   OK
        ROM 1   OK
        ROM 2   OK
        ROM 3   OK

If any of the ROMs are at fault, for instance, ROM 1, the following appears
on TV monitor.
        RAM   OK
        ROM Ø   OK
        ROM 1   NG
        ROM 2   OK
        ROM 3   OK

1

START

SET SWITCH 8 OF DIP SWITCH 2
TO "ON"

TURN POWER SWITCH TO "ON"

RAM TEST OK? — NO → FAULTY RAM INDICATED ON TV MONITOR → PUSH 1P BUTTON TO CONTINUE RAM TEST → IF RAM OK APPEARS

OR

PUSH 2P BUTTON TO ADVANCE TO ROM TEST

YES

ROM TEST OK? — NO → REPLACE FAULTY ROM

YES

PUSH 2P BUTTON

TEST LIST DISPLAYED ON TV MONITOR

SELECT TEST BY OPERATING JOYSTICK

PUSH 1P BUTTON TO START TEST

01 DIP SWITCH TEST   02 I-O PORT TEST   03 SOUND TEST   04 CHARACTER TEST   05 COLOR TEST   06 CROSS HATCH PATTERN

TEST ENDS?

NO

YES

TURN POWER SWITCH TO "OFF"

SET SWITCH 8 OF DIP SWITCH 2
TO "OFF"

FINISH

2

3. DIP SWITCH TEST

While TV monitor displays the test list, control the joystick to position the cursor at 01 and press the 1-Player button.

This test shows the state of switches of Dip Switch 1 and 2 and the results of game adjustments.

```
DIP SW     1  2  3  4  5  6  7  8
DSW 1      0  0  0  0  0  0  0  0       1 = ON
DSW 2      0  0  0  0  0  0  0  1       0 = OFF


COIN MODE  A     1 COIN  1 PLAY
COIN MODE  B     1 COIN  2 PLAYS

BODY TYPE        UPRIGHT
DIFFICULTY       EASY
DECREASE         SLOW
FIGHTERS         3
```

4. I/O PORT TEST

When TV monitor displays the test list, control the joystick to position the cursor at 02 and press the 1-Player button.

This test checks if all the switches on the Control Panel and Coin Doors are working correctly. The following display appears.

```
INTERFACE 1.    1  2  3  4  5  6  7  8
  READ DATA     0  0  0  0  0  0  0  0

INTERFACE 2     1  2  3  4  5  6  7  8
  READ DATA     0  0  0  0  0  0  0  0

INTERFACE 3     1  2  3  4  5  6  7  8     1 = ON
  READ DATA     0  0  0  0  0  0  0  1     0 = OFF


TIMING  n n n n
 *TIMING  starts at 0000 and adds one count approximately every second.


INTERFACE 1-1 ... 1-Player Start Button
          1-2 ... 2-Player Start Button
          1-3 ... Service Switch
          1-4 ... Coin Switch A
INTERFACE 2-1 ... 1P Joystick right
          2-2 ... 1P Joystick left
          2-3 ... 1P Joystick down
          2-4 ... 1P Joystick up
          2-6 ... 1P punch button
          2-8 ... 1P kick button
INTERFACE 3-1 ... 2P Joystick right
          3-2 ... 2P Joystick left
          3-3 ... 2P Joystick down
          3-4 ... 2P Joystick up
          3-5 ... Coin Switch B
          3-6 ... 2P punch button
          3-8 ... 2P kick button
```

To terminate this test and bring the test list back to TV monitor, move the joystick left while depressing the 2-Player button.

5. SOUND TEST   When TV monitor displays the test list, control the joystick
                to position the cursor at 03 and press the 1-Player button.

A table of sounds appears on TV monitor.

                    SOUNDS
            01 YELL OF PLAYER (JUMP-KICKS)
                CREDIT ADDING SOUND
            02 YELL OF PLAYER (PUNCHES, KICKS)
            03 GROAN OF PLAYER OR ENEMY
            04 LAUGHING VOICE OF ENEMIES-1
            05 LAUGHING VOICE OF ENEMIES-2
            06 BURSTING OF PAPER BALL
                BURSTING OF DRAGON'S EGG
            07 SHRIEK OF PLAYER
            08 PLAYER RUNNING
            09 HITTING SOUND (PUNCHES, KICKS)
            10 SWISHING SOUND
            11 BURSTING OF SNAKE POT
            12 BITING SOUND
            13 SOUND OF KNIVES, BOOMERANGS
            14 COUNTING POINTS
            15 GAME START
            16 BGM
            17 COMPLETION OF EACH PATTERN
            18 COMPLETION OF GAME
            19 GAME OVER
            20 TIME UP WARNING
            21 ADDITIONAL FIGHTER
                    MUSIC END

Select a sound by positioning the cursor with the joystick. Depressing the 1-Player
button repeats the sound.

6. CHARACTER TEST   When TV monitor displays the test list, control the joystick
                    to position the cursor at 04 and press the 1-Player button.

TV monitor displays four moths which are flipped vertically and horizontally
as shown below.
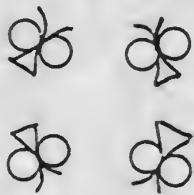
7. COLOR TEST   While TV monitor displays the test list, control the joystick
                   to position the cursor at 05 and press the 1-Player button.

This test comprises of five independent checkups.   Pressing the 1-Player button
brings each checkup to TV monitor.

(1) A row of letters A through Z appears along with a row of numbers 0 thru 9
    as shown below.

        ABCDEFGHIJKLMNOPQRSTUVWXYZ
        0123456789

(2) BLUE field is displayed.

(3) RED field is displayed.

(4) GREEN field is displayed.

(5) Color pattern appears on TV monitor as shown below.

CYAN							
BLACK							
BLACK	RED	GREEN	YELLOW	BLUE	PINK	CYAN	WHITE
WHITE							
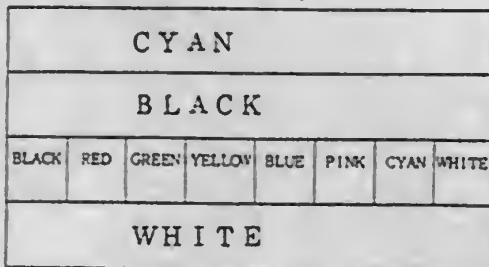
8. CROSS HATCH PATTERN TEST   Control the joystick to position the cursor at
                                06 and press the 1-Player button.

Cross Hatch Pattern is displayed as shown below.

16 lines

16 lines

5